Name:

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Geometry, Period

Due Date: Mon, 26 Feb 2015

**Geometry**

**Homework**



1. Draw a line connecting points P1 & P2 and continuing through both the x & y axis.

a) What is the y-intercept? **b =**\_\_\_\_\_\_\_\_

b) What is the slope? **m =**\_\_\_\_\_\_\_\_

c) Label the coordinates of both points. Then calculate the slope algebraically using the 2 points.

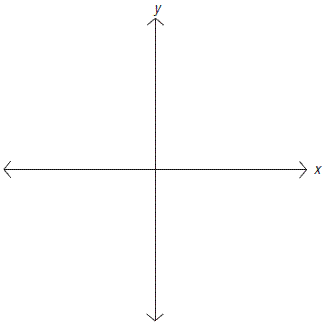
d) Put the slope into the form ***y = mx + b***.

1. Find the distance between the two points ***using the distance formula***. (You may ***check*** your work by counting & using the Pythagorean theorem, but you must show that you can use the distance formula here.)
2. Draw a line connecting points P1 & P2 and continuing through both the x & y axis.

a) Calculate the slope from the two points.

b) Put the slope into the form ***y = mx + b***. Pick one of the coordinates & plug in for ***x*** & ***y*** to find the y-intercept (***b***).

c) Find the distance between the two points ***using the distance formula***.

1. Put the following points on the coordinate plane below: and .   
   (This is a rough sketch – it does not need to be to scale or have lines drawn in.)
2. Calculate the slope & y-intercept to write an equation for the line connecting the two points.
3. Use the distance formula to find the distance between the two points.

***How far do you live from Muchin? CALCULATE IT!***

Chicago is designed on a grid. You can think of State as the y-axis & Madison as the x-axis. Your street address gives you one coordinate, with North/South being positive/negative on the y-axis, and West/East being positive/negative on the x-axis. For example, University of Chicago is at 5801 South Ellis Avenue. 5800 S means the y coordinate is – 5800. The street gives the other coordinate, which you can find at [j.mp/chicagogrid1](http://j.mp/chicagogrid1). Clicking “E” shows that Ellis Ave S is at 954 E. East means the x coordinate is positive, so U of C is at (954, – 5800). Using this, you can find the coordinate distance between any two points in Chicago. (To find the distance in miles, divide this number by 800 – if you want to understand why, visit [j.mp/chicagogrid2](http://j.mp/chicagogrid2).)

On graph paper, write down your address or a Chicago address of your choice (not an address of another Muchin student or one they used). Then find the coordinates of this address. Finally, calculate the distance between your house and State & Madison (0, 0). Let’s find out who really lives the farthest from Muchin!

***Exploration & Review***

You should approach each problem as an exploration. Problem-solving requires persistence as much as it requires ingenuity. When you get stuck, or solve a problem incorrectly, back up and start over. Keep in mind that you’re probably not the only one who is stuck, and that may even include your teacher. **If you have taken the time to think about a problem, you should bring to class a written record of your efforts, not just a blank space in your notebook**. The methods that you use to solve a problem, the corrections that you make in your approach, the means by which you test the validity of your solutions, and your ability to communicate ideas are just as important as getting the correct answer.

Solve all of the problems on a piece of paper ***STAPLED TO YOUR HOMEWORK.*** If you are stuck and cannot answer a question, write at least three complete sentences about the problem and what you ***do*** know. Use at least one of the sentence starters below:

1. Even though I am stuck, I do know…and I think I should…because…
2. I am stuck because I do not know what \_\_\_\_\_ means. I think it means…so I tried…
3. I got this answer but I think it is wrong because…

*Remember that you can always use old notes, a dictionary, math textbook, and/or look up topics online!*

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| 1) Chase began a number puzzle with the words “Pick a number, add 7 to it, and double the result.” Chase meant to say, “Pick a number, double it, and add 7 to the result.” Are these two instructions equivalent?  a. Identify whether the expressions are equivalent.  b. Provide proof in the form of a table that justifies your answer to the prior question. |
| 2) The Mount Major hike starts in Alton Bay, 716 feet above sea level. The summit is 1796 feet above sea level, and it takes about 45 minutes for a typical hiker to make the climb. Find the rate at which this hiker gains altitude, in feet per minute.  a. Draw a picture of the Mount Major hike, labeling all distances.  b. Find the rate in FEET per MINUTE (represent as a fraction). |